## REMARKS

Applicant has reviewed and considered the Office Action dated August 21, 2008 and the references cited therein. In response thereto, claims 11-15, 20, 22 and 23 have been amended, therefore, claims 11-28 are pending.

*Claim Rejections Under 35 U.S.C. §112*

Claims 11-28 are rejected under 35 U.S.C. § 112, second paragraph. Applicant traverses this rejection, initially observing that claims 11-15, 20, 22 and 23 have been amended.

Claims 11 and 20 have been amended to contain only one sentence and rewritten to remove awkward language. Additionally, claims 11 and 20 have been amended to recite *inter alia* that "the long-chain nylon is selected from one or more following nylons: nylon-1010, nylon-1111, nylon-1212, nylon-1313, nylon-46, nylon-66, nylon-610, nylon-612, nylon-613, nylon-1011, nylon-1012, nylon-1213, nylon-8, nylon-9, nylon-11, nylon-12, nylon-13, poly(telephthaloyl-2,2,4-trimethyl hexamethylene diamine), poly(3-t-butyl-hexanedioyl heptamethylene-diamine), co-condensation nylon 6/7, co-condensation nylon 6/10, co-condensation nylon 6/12, co-condensation nylon 6/13, co-condensation nylon 10/11, co-condensation nylon 10/12, co-condensation nylon 12/13, nylon-6T and nylon-10T . . . ."

The term "very good interface combination" has been deleted from claim 11.

The terms poly(telephtaloyl-2,2,4-trimethyl hexamethylene diamine), poly(3-t-butyl-hexanedioyl heptamethylene diamine), have been deleted from claims 13 and 22. Please note that the terms were corrected when added to claims 11 and 20.

The term "matrix nylon" is defined in the specification as, "the toughened part of toughened nylon, which is prepared by the homopolymerization or copolymerization of cyclic lactam monomer and their corresponding amino acid." (Applicants' Specification, page 7, lines 19-21).

The language "said corresponding amino acids" in claims 13 or 22 has antecedent basis from "the matrix nylon is prepared by the homopolymerization or copolymerization of cyclic lactam monomers or their corresponding amino acids" as recited in claims 11 or 20.

The term "co-condensation" was deleted from claims 13 and 22. Please note that in claims 11 and 20, the added term "co-condensation" nylon, i.e., co-condensed nylon or copolymerized nylon is well known in the art so that a person skilled in the art can specify the claimed long-chain nylon.

The term "such" has been deleted from claims 15 and 24.

The term "precise instrumental parts" means "parts of precise instrument." A "precise instrument" is well known in the art so that a person skilled in the art can specify the claimed "precise instrumental parts."

In claim 20, "or their corresponding amino acids" has been added following the recitation of "this toughened nylon is prepared by the polymerization of said lactam monomer".

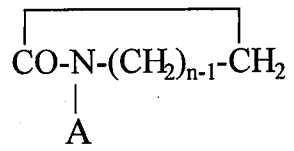
Applicant submits that these claim amendments obviate this rejection and therefore, reconsideration and withdrawal of the § 112, second paragraph rejection are respectfully requested.

*Claim Rejections Under 35 U.S.C. §102/§103*

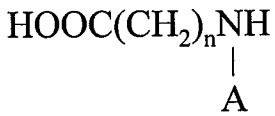
Claims 11-15, 19-24 and 28 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,714,718 ("Horn et al."). Applicant respectfully traverses the rejection for at least the following reasons.

Amended claim 11 is directed to a toughened nylon that includes a matrix nylon and a long-chain nylon, the matrix nylon is prepared by the homopolymerization or copolymerization of cyclic lactam monomers or their corresponding amino acids, the structure of said cyclic

lactam is represented by Formula (I) and the structure of said amino acid is represented by Formula (I');



(I)



(I')

in Formula (I) and (I') A is H or alkyl with 1-8 carbon and $3 \leq n \leq 11$;

the long-chain nylon is selected from one or more following nylons: nylon-1010, nylon-1111, nylon-1212, nylon-1313, nylon-46, nylon-66, nylon-610, nylon-612, nylon-613, nylon-1011, nylon-1012, nylon-1213, nylon-8, nylon-9, nylon-11, nylon-12, nylon-13, poly(telephthaloyl-2,2,4-trimethyl hexamethylene diamine), poly(3-t-butyl-hexanedioyl heptamethylene-diamine), co-condensation nylon 6/7, co-condensation nylon 6/10, co-condensation nylon 6/12, co-condensation nylon 6/13, co-condensation nylon 10/11, co-condensation nylon 10/12, co-condensation nylon 12/13, nylon-6T and nylon-10T; and

the proportion of said long-chain nylon in the total weight of toughened nylon is 2-45 %; as the toughened nylon has only one melting peak detected with differential scanning calorimetry.

Horn et al. discloses "nylon moldings which may or may not be cellular[, are] produced by activated anionic lactam polymerization and possess improved performance characteristics." (Horn et al., col. 1, lines 4-7).

Horn et al. does not teach or suggest, would not be predictive, and does not provide an expectation of success that one skilled in the art would select a matrix nylon and a long-chain nylon as recited by the formulas in claim 11.

Neither does Horn et al. teach or suggest, nor is Horn et al. predictive that one skilled in the art would select a toughened nylon that has only one melting peak detected with differential scanning calorimetry as recited in claim 11.

Applicant respectfully disagrees with the Office's statement that, "[g]iven the similarity of materials used, their contents and their method of preparation to those presently claimed, it is reasonably believed that the compositions of the reference [Horn et al.] would inherently meet all the characteristics governing applicants' toughened nylon." (Office Action, page 4, lines 6-9).

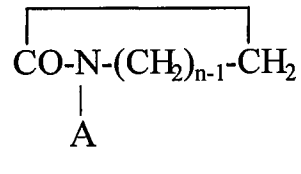
There is a difference in monomers between those of Horn et al. and those recited in claim 11. Furthermore, in Horn et al., the mixture shown in Example 1 has the following properties: elongation at break is 24%; notched impact strength is 16 $kJ/m^2$ (about 160~170 J/m) at 23°C and 5 $kJ/m^2$ (about 50-60 J/m) at -40°C. (See, Horn et al., col. 6, lines 14-55).

The compositions of claim 11 have properties listed in Table 1. (See Applicant's specification, page 18). Applicants' results shows much higher elongation at break of 173-820%, and higher impact strength at low temperatures, 103-709 J/m at -40°C, than the compositions of Horn et al. Therefore, the compositions of claim 11 have far different properties to the compositions of Horn et al.

The specific aliphatic nylons recited in claim 11 have excellent molecular flexibility as molecular chains can be broken and exchanged during polymerization *in situ* to form a well-dispersed system. The hydrogen bonding between individual chains is changed, leading to better compatibility of the two constituent polymer types. The toughened nylon of claim 11 has only one melting peak detected with differential scanning calorimetry.

In contrast, the polymer chains of the compound polymer disclosed by Horn et al. has a more rigid chain. As a result, the molecular chains of the two constituent polymer types of the compound polymer will not be able to form hydrogen bonds as freely and will form separate phases with low compatibility instead. This is shown in the property of lower impact strength under low temperature.

Amended claim 20 is directed to a toughened nylon that includes a matrix nylon and a long-chain nylon, the matrix nylon is prepared by the homopolymerization or copolymerization of cyclic lactam monomers or their corresponding amino acids, the structure of said cyclic lactam is represented by Formula (I) and the structure of said amino acid is represented by Formula (I');



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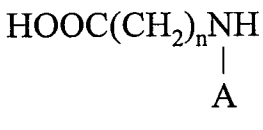

(I')

in Formula (I) and (I') A is H or alkyl with 1-8 carbon and $3 \leq n \leq 11$;

the long-chain nylon is selected from one or more following nylons: nylon-1010, nylon-1111, nylon-1212, nylon-1313, nylon-46, nylon-66, nylon-610, nylon-612, nylon-613, nylon-1011, nylon-1012, nylon-1213, nylon-8, nylon-9, nylon-11, nylon-12, nylon-13, poly(telephthaloyl-2,2,4-trimethyl hexamethylene diamine), poly(3-t-butyl-hexanedioyl heptamethylene-diamine), co-condensation nylon 6/7, co-condensation nylon 6/10, co-condensation nylon 6/12, co-condensation nylon 6/13, co-condensation nylon 10/11, co-condensation nylon 10/12, co-condensation nylon 12/13, nylon-6T and nylon-10T;

this toughened nylon is prepared by the polymerization of said cyclic lactam monomer or their corresponding amino acids in the existence of said long-chain nylon as toughening agent; the proportion of said long-chain nylon used as toughening agent in the total weight of toughened nylon is 2-45%.

Horn et al. does not teach or suggest, would not be predictive, and does not provide an expectation of success that one skilled in the art would select a matrix nylon and a long-chain nylon as recited by the formulas in claim 20.

Neither does Horn et al. teach or suggest, nor is Horn et al. predictive that one skilled in the art would select that the proportion of said long-chain nylon used as toughening agent in the total weight of toughened nylon is 2-45%. as recited in claim 20.

As discussed above with respect to claim 11, there is a difference in monomers between those of Horn et al. and those recited in claim 20. Furthermore, the physical properties of the toughen nylon of claim 20 has far different properties to the compositions of Horn et al.

Applicant respectfully requests that the rejection of claims 11 and 20 under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103(a) be withdrawn.

*Rejection of the Dependent Claims*

Because claims 12-15, 19, 21-24 and 28 depend directly or indirectly from the independent claims and incorporate all the limitations of the corresponding independent claims, they are allowable for the same reasons and, further, in view of their additional recitations.

## CONCLUSION

In view of the above, it is respectfully submitted that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested.

If a telephone conference would be helpful in resolving any remaining issues, please contact the undersigned at 612-492-6878.

This response is being submitted on or before February 21, 2009, with the required fee for a three-month extension of time, making this a timely response. It is believe that no additional fees are due in connection with this filing. However, the Commissioner is authorized to charge any additional fees, including extension fees or other relief which may be required, or credit any overpayment and notify us of same, to Deposit Account No. 04-1420.

Respectfully submitted,

DORSEY & WHITNEY LLP
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